NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

RESIDUE MANAGEMENT, NO TILL/STRIP TILL

(Acre)

CODE 329A

DEFINITION

Managing the amount, orientation and distribution of crop and other plant residues on the soil surface year-round, while growing crops in narrow slots or tilled strips in previously untilled soil and residue.

PURPOSES

This practice may be applied as part of a conservation management system to support one or more of the following:

- Reduce sheet and rill erosion.
- Maintain or improve soil organic matter content.
- Conserve soil moisture.
- Provide food and escape cover for wildlife.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all cropland and other land where crops are grown.

This standard includes tillage and planting methods commonly referred to as no till, zero till, slot plant, row till, zone till, or strip till.

CRITERIA

General Criteria Applicable to All Purposes Named Above

Loose residues to be retained on the field, shall be uniformly distributed on the soil surface.

Planters or drills shall be equipped to plant directly through untilled residue or in a tilled seedbed prepared in a narrow strip along each row by planter attachments such as rotary tillers, sweeps, multiple coulters, or row cleaning devices.

Residues shall not be burned, or disturbed by full-width tillage operations except as follows:

Seedbed preparation, planting, and fertilizer placement shall disturb no more than one third of the row width. The row area formed by the planting operation shall be level with or slightly above the adjacent row middles unless the rows are planted on the contour.

If row cultivation or spot treatment for weed escapes, leveling ruts, or similar operations become necessary, tillage shall be limited to undercutting operations which minimize burial of surface residue needed.

Additional Criteria to Reduce Sheet and Rill Erosion

The amount randomly distributed, flat residue needed to reduce erosion within the soil loss tolerance (T) or any other planned soil loss objective, shall be determined using current approved erosion prediction technology. Partial removal of residue by means such as baling or grazing, shall be limited to retain the percent residue needed.

Additional Criteria to Maintain or Improve Soil Organic Matter Content and Conserve Soil Moisture

Erosion shall not exceed the soil loss tolerence (T). A minimum quantity of 50 percent residue cover shall be maintained throughout the year. Residue shall be evenly distributed and maintained on the soil surface. Partial removal of residue by means such as baling or grazing shall be limited to retain the amount needed.

Additional Criteria to Provide Food and Escape Cover for Wildlife

Residue height, amount, and time period shall be determined using Standard 645. Residues shall not be removed unless it is determined by the 645 Standard that removal would not adversely affect habitat values.

PLANNING CONSIDERATIONS

No till or strip till may be practiced continuously throughout the crop sequence, or may be managed as part of a system which includes other tillage and planting methods such as mulch till

Production of adequate amounts of crop residues necessary for the proper functioning of this practice can be enhanced by selection of high residue producing crops and crop varieties in the rotation, use of cover crops, and adjustment of plant populations and row spacings.

Maintaining a continuous no till system will maximize the improvement of soil organic matter content. Also, when no till is practiced continuously, soil reconsolidation provides additional resistance to sheet and rill erosion.

Leaving rows of unharvested crop standing at intervals across the field can enhance the value of residues for wildlife habitat.

PLANS AND SPECIFICATIONS

Specifications for establishment and operation of this practice shall be prepared for each field or treatment unit according to the Criteria, Considerations, and Operation and Maintenance described in this standard. Specifications shall be recorded using narrative statements in the conservation plan, or other acceptable documentation. Specifications will include the following:

1. Identify resource concern(s) to be treated (see **PURPOSES**).

2. Ensure that field location, acreage, crop rotation, tillage sequence, and percent residue needed to address identified resource concern(s) are recorded as needed in the conservation plan.

3. Type(s) of tillage implements used.

4. Soil loss calculations if needed.

OPERATION AND MAINTENANCE

Proper adjustments, operation, and maintenance of equipment is essential for successful implementation of this practice.

References

1. Renard, K.G., G.R. Foster, G.A. Wessies, D.K. McCool, and D.C. Yoder, coordinators. Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE). USDA Agricultural Handbook No. 703, 1997.

2. National Handbook of Conservation Practices, USDA Natural Resources Conservation Service.

3. National Agronomy Manual, USDA Natural Resources Conservation Service.